Understand how examples, counterexamples and general cases contribute to mathematical work

Key knowledge | Free preview

Learning target: Understand how examples, counterexamples and general cases contribute to mathematical work.

An illustrative population is modelled by $P' = 0.2P(1-P/1000)$, with $P(0)=100$ and time measured in weeks. The population observations supplied here are invented for mathematical practice. Compare model behaviour, numerical approximations and contextual conclusions while keeping the model's assumptions separate from the example data.

Try the mathematics

Task 1. A claim says "every positive solution of this logistic equation increases". Evaluate the derivative at $P=100,1000,1200$. Give a counterexample and a corrected conditional statement.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/sm-u34-o2-kk-03/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 2; Key knowledge; bullet 3; p. 115.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o2-kk-03. This is an internal identifier, not an official VCAA code.

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